

RECORD

3.00

30

20
15

25

74

66

30

l.

30'

18 Sept. 1967 Material in KOT:

No mark = Portal-Rodeo Rd.

Right Elytra clipped = 47971

30

31

19 Sept 1967

Parasite of trash-carrying lep. larva.

[T.E.] At 11:15 AM - ~~#~~ parasite emerged from larval lep. and commenced spinning ~ $\frac{1}{2}$ hour afterwards.
"May have come out due to disturbance of larva."

[R.S.] At 1 PM - Still spinning pupal case. Case almost opaque, but ~~#~~ larva can be seen in silhouette, spinning.

~~All parasitized~~

20 Sept

Three more acquired. All are from Solidago, henceforth to be known as Exp. No. 465-B

PIE

32

GLANDS

♂ ♀

The feeb. I call:

ELEODES LONGICOLLIS

MARGINED THORAX + RUGOSE ELYTRA

ELEODES, BROWN BOODED

GREY-TOPPED

ELEODES, ROBUST

ELEODES, SHARP SPINED

FAT- REARED MIMIC

+

○

-

+

-

+

+

-



PI 31

35

32

GLANDS

♂

♀

LONG, 2 ch? narrow

+

○

SHORT

+

-

~~BRASSEREE-SHAPED~~

+

MITTEN-SHAPED

+

-

Members of the black-aposematism-at-dusk complex:

- 1967 *Eleodes longicollis*
- 1967 *E. robust*
- 1967 *E. brown-bodied*
- 1967 *E. sharp-spined*
- 1967 *E. blunt-spined*
- 1966 *Monolema*
- 1967 MELOID, RED & BLACK
- 1966 MELOID, BLACK
- 1967 *Gonosida*
- 1966 *Megasida*
- 1967 HEMISPHERICAL TENEBS.
- 1966 GIANT BLACK WEEVIL
- 1967 COMMON NON-SPRAYER
- 1967 *Pselaphus*
- 1967 *Calozoma*
- 1967 Black locust w/ red wings
- 1967 Nymphal & adult *Taeniodora*
- 1967 Rugose-elytra, marginated tenebs
- 1967 *Zopherus*
- 1967 Grey-topped tenebs, RUNNER
- 1966 Grey-topped tenebs, FREEZER

188

34

476

21 Sept '67 Army ants (Neivamyrmex) versus
Fluffpuffs

18:50

2 Fluffpuffs, naked and with fluff,
~~water~~ placed in nest. Naked one
overrun and stung; immobile
within 5 minutes.

20:00

Full fluffed fluffpuff still alive and
moving.

20:05

Same experiment as above repeated.
The ants are now looking for ways
out, and are trying to climb the
container walls, which they cannot.
They also climb anything high and
so climb, rather than attack, the
fluffpuffs. But every once in a
while an ant does bite. More
ants climb atop the fluffpuff,
and tip it over.

20:23

The naked one is on its back,
stung and immobile. Both
the fluff puff in this expt. and
the one before are still alive.
& moving.

HC

35

20 Sept 67

Chauliognathus propinquus mimicry-complex
on plant number . . .

① ♂ Sphind Mafillid ♂ Spider ♂
② ♂ Sphind Mafillid ♂ Spider ♂

③ ♂ Chauliognathus Spider ♀ Spider ♀
④ ♂ Chauliognathus Spider ♀ Spider ♀

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

2 } Portal-Rodeo Rd 19 Sept

3 }

4 } Road to Paradise 20 Sept

5 }

6 } Portal Rodeo Rd. 19 Sept

7 }

8 } Road to Paradise 20 Sept

← PIX.

matting
behavin?

Photos with UV lens, distances.

- | | |
|-----|-------|
| (1) | 1 cm. |
| (2) | 2 cm |
| (3) | 3 cm |
| (4) | 4 cm |
| (5) | 5 cm |

36

36

Exp. #465

Plants with trash carrying
(ie, petal bearing) lep. larvae

#465-A

Portal-Rodeo Rd

#465-B

Solidago sp.

Portal-Rodeo Rd

#465-C

Portal-Rodeo

PLANT IDENTIFICATION

+ Cont'd

37"

37

37

*Blätter mit feinlänglichen Zähnen, weiß
blühend, Blüten einzeln, zylindrisch mit
einem zentralen Staubdrüsenträger.
Früchte eingeschlossen in Blüten-
hüllchen, oft mit kleinen Fortpflanzungs-
hügelchen.*

TEA, T2Q

Early & Late T

GL 7 *vulgaris L. (Linné) Persoon*

GL 8 *gossypium hirsutum (Linné) Persoon*

GL 9 *(ciliogynum = ina L.) Persoon*
persicaria officinalis

GL 10 *lactuca sativa (Linné) Persoon*

GL 11 *lactuca sativa (Linné) Persoon*

GL 12 *lactuca sativa (Linné) Persoon*

GL 13 *lactuca sativa (Linné) Persoon*

EXTRAORDINARY PLANTS

GL 14

GL 15

GL 16

GL 17

GL 18

GL 19

GL 20

GL 21

GL 22

GL 23

GL 24

GL 25

GL 26

GL 27

GL 28

GL 29

GL 30

GL 31

GL 32

GL 33

GL 34

GL 35

GL 36

GL 37

lactuca sativa (Linné) Persoon
" " " " " " " "

" " " " " " " "

" " " " " " " "

37

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87

PLANTS IDENTIFIED FOR T. EISNER BY WM. J. DRESS,
P. A. HYPIO, AND D. M. BATES. JANUARY, 1968

Plants are listed by experiment number. Where several numbers refer to the same specimen or species, the plant is identified under the first experiment number that refers to it. When the species appears later, the experiment number under which the name can be found is underlined, and is followed by all other experiment numbers that refer to the same plant.

Unless otherwise stated, all species are members of the family Compositae.

+ Cont'd
↓

37'

PL

PLANTS IDENTIFIED BY WM. J. DRESS, P.A. HYPIO,
& D. H. BATES
CONTINUED

EXPERIMENT NUMBER(S)	NAME	DET.
"Citronella weed" (No expt. no.)	<u>Pectis angustifolia</u> Torr. (This plant was from New Mexico. Note that plant # no. 465Z, which also "smelt like citronella" is another species of the same genus, <u>P. filipes</u> Harr. & Gray)	WJD
466 =465D, 467A, 477		
467 This is the series from Cave Creek Ranch: A =465D, 466, 477 B =465C C =475G D E	<u>Heliopsis parviflora</u> Gray <u>Viguiera multiflora</u> (Nutt.) Blake <u>Viguiera multiflora</u> (Nutt.) Blake, variant with laciniate rays. <u>Aster tephrodes</u> (Gray) Blake <u>Bahia dissecta</u> (Gray) Britton <u>Heterotheca subaxillaris</u> (Lam.) Britt & Rusby <u>Erigeron neomexicanus</u> Gray	WJD WJD WJD WJD
F =475A G H J		WJD WJD WJD WJD
473 =465F		
475 This is the series of "Paradise" composites' (not all composites): A =467F B (MALVACEAE) C (VERBENACEAE) D (GERANIACEAE) E F =465Q G =467C	<u>Sphaeralcea laxa</u> Woot & Standl. <u>Verbena bipinnatifida</u> Nutt. <u>Geranium crenophyllum</u> Woot & Standl. <u>Psilosiphon sparsiflora</u> (Gray) A. Nels.	DMB PAH PAH WJD
477 =465D, 466, 467A		
478 =464(1), 465G		
493R2 =463, 464(2), 465B 493R3 #	<u>Baccharis glutinosa</u> Pers. (Male)	WJD

78

38

3

LABELS - ARIZ. 1967

and aged men,
old women,
old
and
young

20000 : 20000 . रु
20000 : 20000 . रु
20000 : 20000 . रु

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三十六

Jurnal
Taman

931

LABELS FOR ARIZONA FIELD TRIP, 1967 (R. SILBERGLIED)
 (FOR T. EISNER)

ARIZ: Cochise Co.,
 Cave Creek Canyon
 (Cave Creek Ranch) 500
 September 1967

ARIZ: Cochise Co.,
 Cave Creek Canyon
 (Cave Creek Ranch) 100
 October 1967

ARIZ: Cochise Co.,
 road betw. Portal
 and Rodeo, N. Mex. 400
 September 1967

ARIZ: Cochise Co.,
 road betw. Portal
 and Paradise 200
 September 1967

ARIZ: Cochise Co.,
 road betw. Portal
 and San Simon 100
 September 1967

ARIZ: Cochise Co.,
 - - - - -
 - - - - - 1967 100
 R. Silberglied

at U.V. blacklite
 R. E. Silberglied 500

T. Eisner, J. Carrel
 and R. Silberglied 400
 collectors

TEXAS: Deaf Smith
 Co., near Glenrio
 15 September 1967 100
 T. Eisner, et al.

N. MEX.: Hidalgo
 Co., 2 mi. S. of
 Road Forks. 100
 16 Sept, 1967

TEXAS: Wheeler Co.
 Shamrock (at
 light) 14 Sep. 1967 200
 T. Eisner, et al.

N. MEX.: Dona Ana
 Co., eastern slope
 of San Agustin Pass 100
 16 September 1967

N. MEX.: Dona Ana
 Co., top of San
 Agustin Pass, el. 200
 5654'. 3 Oct. 1967

T. Eisner
 Experiment
 No. 200

J. Carrel
 Experiment
 No. 400

J. Carrel
 collector 400

747853

748315

82

468

39

Associated with Chrysopid Project

- (1) Sycamore 468 B
- (2) Chrysopid 468
- Reduviid ^{w/3} spots 468 A
- Tingids 468 C
- ~~(3)~~ Mantid 468 D
- Blue Reduviid 468 E
- Pogonomyrmex 468 F
- Spider (Anaphenid) 468 G

468 G. Spiders (anaphenids?) versus
Phalaphaphuphphs (Chrysopid larvae)

21 Sept
13:40

(1) Spider versus full fluff. 3 ~~fluff~~
fluffpuffs placed in low cassette with
anaphenid on cut sycamore axil.

(2) Spider versus defluffed. 3
defluffed fluffpuffs placed in jar
with anaphenid (?) on cut sycamore
axil.

(3) Same as #2, without leaf,

P.S.

40

CHAULIOGNA THIS COMPLEX

PREY:

Chaulio-
gnathusAmme-
phila

PREDATOR:

Large Red "Sticky" Reduviid

20 Sept 3:45 + 21 Sept 11:00

464. Ch. association of Portal

OA

39

468 PE

21 Sept 1967 Anaphenid^(?) spiders versus Phuffpuffs

- 21:10 ① Spider with leaf nest, cut to fit, put in cassette. 2 phuffpuffs with fluff placed in web. Spider came out when one of them moved; inspected fluff with palpi, movements with his legs. Then he returned to his tunnel nest in the palmate leaf base. Repeated a second time. Repeated a third. Now the second phuffpuff has crawled under the main sheet of the web. The spider is cutting a hole in the sheet surface. It puts its legs thru the hole to inspect ~~the~~ the phuffpuff. Returns to upper sheet of web, inspects the larva (^{i.e.} ~~puff~~) caught there and then returns to its retreat (tunnel).
21:15
21:16
21:18
21:24
21:29
21:31
21:51
- upper larva
Returned to inspect, left in < 1 m.n.
Returns to puff ~~the~~ (upper) and remains there with legs atop the puff but not doing anything.
Bites puff and gets a chelicera full of fluff. Returns to retreat.
Spider returned to fluff as before, waiting

39

PC

with palps & legs on fluff. Returns to retreat after ~1 min.

22:35

Still in retreat

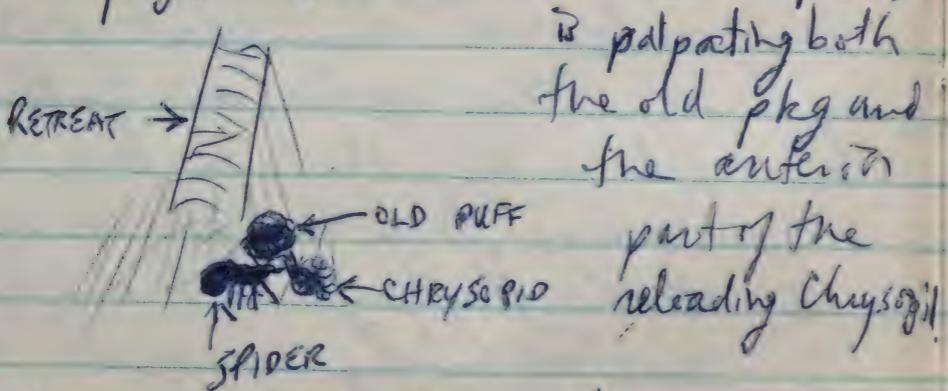
2:37

Fluff puff, which was caught by its fluff on the silk web has climbed out of its fluff and is standing on a strand of silk of the web, rebuilding its load with the old fluff.

2:46

Spider comes out of retreat.

He is standing betw. the chrysopid, which is trying to reload, and the old pkg,



2:54.

Spider now rests with its palps on the thorax of the chrysopid, which is ~~not~~ not covered w/ fluff. I can not tell if the spiders chelicerae are on a chrysopid leg; they may be. The puff is about $\frac{1}{3}$ covered w/ fluff, mostly on its abdomen.

3:02

Spider has leg and $\frac{1}{3}$ feeding

3:14-3:15

4 photos taken, borrowed flash lamp
1/15 sec @ f 5.6, 3.5, v9, 5.6

21 Septs

39

468 F

21:25 (2)

Same as above expt, but with naked larvae dropped in web. Spider worked out, tunnel was below main sheet, spider cut hole in main sheet with legs, inspected larva rather closely w/ legs & palps, several times.

21:29.

Spider has puff in chelicerae and drags it toward tunnel, thru to bottom of main sheet. Then returns to retreat, w/out puff. Returns to puff and holds it by the head in its chelicerae. Returns to retreat after 10 min.

21:31

Still in retreat. Puff still in web, does not move when prodded w/ forceps, and appears to have been sucked dry (appears as a flimsy skin of a larva).

21:51

22:35

Still in retreat

22:49

Returned to larva in web

PE

21 Sept

39

468 F

- (3) Same as #1, spider + 2 fluffy puffs
with fluff. This time, puffs just
placed on leaf surface instead of
in web. Vial used instead of
cassette.
- 22:00 Nothing; spider still in retreat.
- 22:35 Nothing; spider still in retreat.

98

21 Sept

39

468 F

④ Same as #3, using larvae w/out
fluff. Vial used instead of
casette.

22:00

22:35

Nothing; spider still in retreat

PE

21 Sept

39

468 F

- 23:30:00 ⑤ Naked larva dropped into web of Anapherid (?) in vial, without leaf. Larva moved web strands.
- 23:30:05 Spider approached larva and touched with legs.
- 23:30:20 Spider touched larva w palps
- 23:31:00 Spider bit larva w chelicerae
- 23:34:35 Still holding in same position.
- 2:15:15 larva just a skin, spider returned to refuge under silk.
- 2:17:00 added a fluff puff with snuff
- 2:18:00 ~~Spider can larva caught on silk by case~~
- 2:20:00 ~~larva~~ Got off silk, wanders about

PC

①

39

23:36:35 Fluffy fluffpuff placed in vial w/ large
anaphorid (?) spider.

23:50:50 Nothing. Spider has moved about a
few times but not attacked fluffpuff

2: 50:00 Nothing. fluffpuff is moving about
rapidly, spider just sits there.

PC

22 Sept

(7)

12:45

39

Placed 2 spiders on cut leaves, with webs,
in cassette, with three fluff/puffs, with
~~fluff~~. The 3 fluff/puffs were placed
on the leaves, not in the webs, to
see if they get caught in webs by them-
selves.

PE

21 Sept

~~22 Sept~~ ⑧

39
Whipscorpion (small, ~17 mm, not incl. whip) was placed in small round petri dish w naked chrysopid larva

22 Sept

12:45

Naked ^{larva} dead on plastic bottom of petri dish, presumed eaten because of crumpled condition of skin.

12:50

Fully fluffed fluffpuff placed in cassette with same whipscorpion. Whipscorpion attacked fluffpuff 4 times, each time grabbing the moving puff and pulling it in towards its chelicerae. Each time the puff was released.

23 Sept

1:15

Remains of ~~fat~~ fluffpuff's puff found in cassette. Assumed fluffpuff was eaten.

PE

23 Sept

39

2:00

a crowded cassette of spiders started,
including 2 cut leaves, with
2 nest-building spiders, with
abdominal pattern, and
3 running spiders, yellowish-white

2:02

1 fluffy chrysopid larva introduced
and 1 naked chrysopid larva introduced
onto cover of cassette.

2:10

Naked larva has fallen off cover onto
leaf surface with ~~old~~ web on it, and
is not moving. Fluffy larva is ex-
ploring top of cassette.

PE

23 Sept

16:20

39

Examining leaves and nests of spiders under
black rope. Insects and other arthropods
are found in nests of the marked spider (4)
but the 2 nests of the running yellow spider
that were examined are bare of all arthro-
pods except exuviae of cicadellids and
living cicadellids and mites.

Arthropods found in web nests of marked
spider:

Cecidomyiid flies
Staphylinid beetles
Mites
Cicadellid bugs
Tingid bugs
Chalcidoid Hymenop's
Trichogrammatid wasp
Muscid flies
Calliphorid fly

PΣ

40

26 Sept. 1917

k

p.

m

N

1

40

A
B
C
D

E = Small Dandelion-like head, upright shoot

F = Sunflower

G = Chauliognathus flower

26 Sept. 1967

Pix TAKEN IN FIELD: U.V.

H = Ground-hugging dandelion-like.

f =

distance

last 5 pictures on a roll	(1) 467 B = 465 C	5.6	5'
	(2) 465 I Hymenoptera bush	5.6	4'
	(3) 465 J Yellow Desert Aster	5.6	4½'
	(4) 465 K Purple Heart	5.6	2'
	(5) 465 L Yellow Heart	5.6	3'
New roll 1st 6 pictures	(1) 465 D = 467 A	4	4'
	(2) 465 D = 467 A	5.6	4'
	(3) 465 M White purple heart	5.6	2'
	(4) 465 N Green 3-horned + <u>Chauliognathus</u> bush	5.6	2'
	(5) 465 N Green 3-horned	5.6	4'
Letter "O" skipped →	(6) 465 P Yellow Dingleberry	8	1.8'

(6) was also shot in color, f/16 @ 1.8' (knife in picture)

23 Sept SPIDERS vs CHRYSOPID LARVAE

22:30 Eight casettes set up, as follows. 39

CHRYSOPID LARVA

1	leaf web	WEB-SPINNING SPIDER	2 WITH fluff
2	leaf web		2 WITH FLUFF
3	leaf web		2 NO fluff
4	leaf web		2 NO fluff
5	no leaf web	RUNNING SPIDER	1 WITH FLUFF
6	no leaf web		1 NO FLUFF
7	no leaf web		1 WITH FLUFF
8	no leaf web		1 NO FLUFF

~~All spiders All web~~

Spiders 1-4, collected at Cave Cr. Ranch

23 Sept 1967 about noon, on Sycamore
Spiders 5-8, collected at Cave Cr. Ranch

22 Sept 1967 on Sycamore

Natural prey seen in webs includes:

Web #	Prey
1	1 muscid fly
2	1 homopt. nymph.
3	1 chalcid fly
4	2 muscid flies + 2 cecidomyiids

all above nests had evidence of fluff.

23 Sept LEAF NESTER, WITH LEAF NEST,
VS. 2 FLUFFY LARVAE
① 22:30 START

24 Sept

- 11:20 Both larvae alive, with full fluff;
Spider still in nest.
19:35 One larva in web has pupated.
The other larva is under some
strands ~~of~~ of the web and is
apparently trapped. The spider
shows no interest and is in its retreat.

25 Sept

- 16:57 Same as before; trapped larva has freed
itself and left some fluff in the web.

26 Sept

- 13:22 Same as 25 Sept. Spider in retreat, one
larva free and moving, other in web
as pupa.
21:53 Same as last time, except spider has
left retreat.

27 Sept

- 12:36 Same as before. Spider in retreat

28 Sept.

- 29 Sept Spider left retreat; spun on other side of
leaf; larva still alive but left more fluff
in fresh strands.
00:59

- 2 Oct Spider in retreat; both larvae have
pupated. TERMINATED

23 Sept LEAF NESTER, WITH LEAF NEST,
VS. 2 FLUFFY LARVAE
② 22:30 START

24 Sept

- 11:21 One larva caught by fluff on underside
of web in silk of web. The other has
apparently lost some fluff to silk strands
on the edge of the web, where it
is standing and struggling against
one silk strand that is loose from
the web where the leaf was cut.
Spider still in retreat of web
Spider still in retreat; both larvae
are free and moving.

25 Sept

- 17:37
17:00 Both larvae alive & moving. One has
lost some fluff. Spider has left
retreat and hides under leaf, but not
near larva.

26 Sept

- 13:23 Same as 25 Sept. Both alive and moving.
Spider has new web between cassette & leaf.
One fluff/puff was observed to cut spider silk
thread ~~with mandibles~~ that held it restrained.

- 21:54 One larva is on side of cassette, alive &
moving; other is on surface of web,
also alive. Spider is on web, not in retreat
27 Sept
12:38 Spider not in retreat, but on side of cassette. One larva
alive & moving; other dead on other side of leaf, apparently
parched dry, probably by 1st larva.

CONTINUED
UNDER NO. 5, p. 33 b.

39

22 Sept
③ LEAF NESTER, WITH LEAF NEST, VS.
2 NAKED LARVAE

22:30 START

22:32 LARVA WANDERED INTO WEB AND SPIDER REACTED BY ATTACKING IT WITH ITS LEGS AND PALPI WAVING FURIOUSLY. LARVA CONTINUED TO STRUGGLE IN WEB AS SPIDER PALPATED IT. SPIDER SUDDENLY RETURNED TO WEB RETREAT.

24 Sept

12:31 One larva found dead on bottom of cassette. No silk on it, apparently sucked dry. Other larva half dressed. I removed the fluff.

19:40 Same as before. I removed some fluff the larva had accumulated.

25 Sept
17:02

Same as before. (removed some fluff the larva had accumulated,

26 Sept.

13:28 Same as 25 Sept. Fluff removed

21:55 Same as above. Dead chrysopid is now incorporated into fluff of live one. Fluff and chrysopid skin now removed so larva is now naked. Spider in retreat.

27 Sept

12:41 Same as before. Fluff removed.

29 Sept 1:00 Same as before. Fluff removed. Spider out of retreat

2 Oct 3:38 Same as before, but larva pupated.

23 Sept LEAF NESTER, WITH LEAF NEST,
VS 2 NAKED LARVAE

④

22:30 START

24 Sept

12:33 Both larvae alive and partly redressed. I have just removed their fluff again. Spider still in retreat.

19:43 Both larvae alive but sluggish. Spider still in retreat.

25 Sept

17:06 One larva alive and I removed some fluff it had accumulated. Other is in web and is dead and black. (examined by T. E. Zwer) ^{NOT EATEN}

26 Sept

13:29 Same as 25 Sept. Fluff removed.

21:59 Same as above. Fluff removed.

27 Sept

12:44 Same as before, except larva inactive and appears ready to pupate.

29 Sept 1:01 Spider out of retreat. new web strands on side of cassette. Other larva dead; apparently not sucked dry. TERMINATED

39

23 Sept LEAF NESTER, WITHOUT WEB,
 US. FLUFFY LARVA
 (5) E START
 22:30

24 Sept 11:45 Fluffpuff caught by fluff in webbing
 and is suspended in midair.
 Some of fluff has been lost to another
 strand of silk in web. Spider
 still spans in against side of cassette
 12:38 Larva is caught in web but very
 sluggish; appears ready to pupate.
 Spider uninterested and in retreat.

19:45 Larva is caught in web but very
 sluggish; appears ready to pupate.
 Spider uninterested and in retreat.

25 Sept 17:08 Fluff still in web. Spider still in
 retreat. Larva is now naked, and
 is caught in another part of web,
 alive. (examined by T. Eisner)

26 Sept 13:31 Fluff still in web, larva is now
 dead, in same part of web as
 before, apparently sucked out. Spider
 in retreat TERMINATED

②, CONTINUED. SPIDER NOT IN RETREAT; NEW WEB ON SIDE
 29 Sept; 00:59 OF CASSETTE. LARVA ALIVE UNDER NEW
 STRANDS AND HAS LOST SOME FLUFF IN
 NEW WEB.

2 OCT. 3:35 SPIDER IN NEW WEB. LARVA IN WEB
 DEAD, APPARANTLY SUCKED DRY.
TERMINATED

23 Sept LEAF NESTER, WITHOUT WEB,
 US. ~~NAKED~~ NAKED LARVA
 (6) START
 22:30
 24 Sept 12:41 Larva alive and quiet on bottom of
 cassette. Spider against side of
 cassette, not near larva.
 Same as before. ~~Sp~~ Larva seems
 to have some silk attached to it.

19:46

25 Sept. 17:10 Larva dead in web, black and apparently
 sucked dry. TERMINATED

39

23 Sept

(7)

RUNNING SPIDER vs FLUFFY LARVA
(NO LEAF)

22:30

START

24 Sept

~~23 Sept~~ 11:45 larva is suspended in midair directly below where spider has spun its retreat. It has lost much fluff in web, and even more below itself on bottom of cassette.

12:44

Larva has lost more fluff to bottom of cassette. It is pulling fluff off its back with great effort, dropping it below itself in a pile. Pictures taken, web broken. Spider taken out. Webbing with ~~spider~~ larva hung on side of cassette. It now is upside down and has a foothold on the silk.

13:05

Larva has released itself. Spider replaced.

19:47

Larva suspended in midair by fluff. Spider active but not near the alive & struggling larva. Larva is pulling out fluff, as before.

25 Sept

17:12

Larva is dead but apparently not sucked dry (appears rather solid, T. Eisner). Still suspended by fluff in midair. (examined by T. Eisner)

TERMINATED

23 Sept

(8)

RUNNING SPIDER vs NAKED LARVA
(NO LEAF)

22:30

START

24 Sept

12:56 Larva has somehow managed to get itself suspended in midair by several strands of silk of the web. It is upside down and struggling to cut threads of the web with its mandibles. Spider is spun in retreat on side of cassette.

13:10

Photos taken, web broken. Larva is still caught in silk, but is on threads suspended from cassette top while being upside down on the bottom of the cassette.

19:49

Larva stuck to silk on bottom of cassette. Spider active but not interested.

25 Sept

17:30

Spider is in retreat; larva as before, appears ready to pupate (examined by T. Eisner)

26 Sept

13:35

As before (25 Sept).

TERMINATED

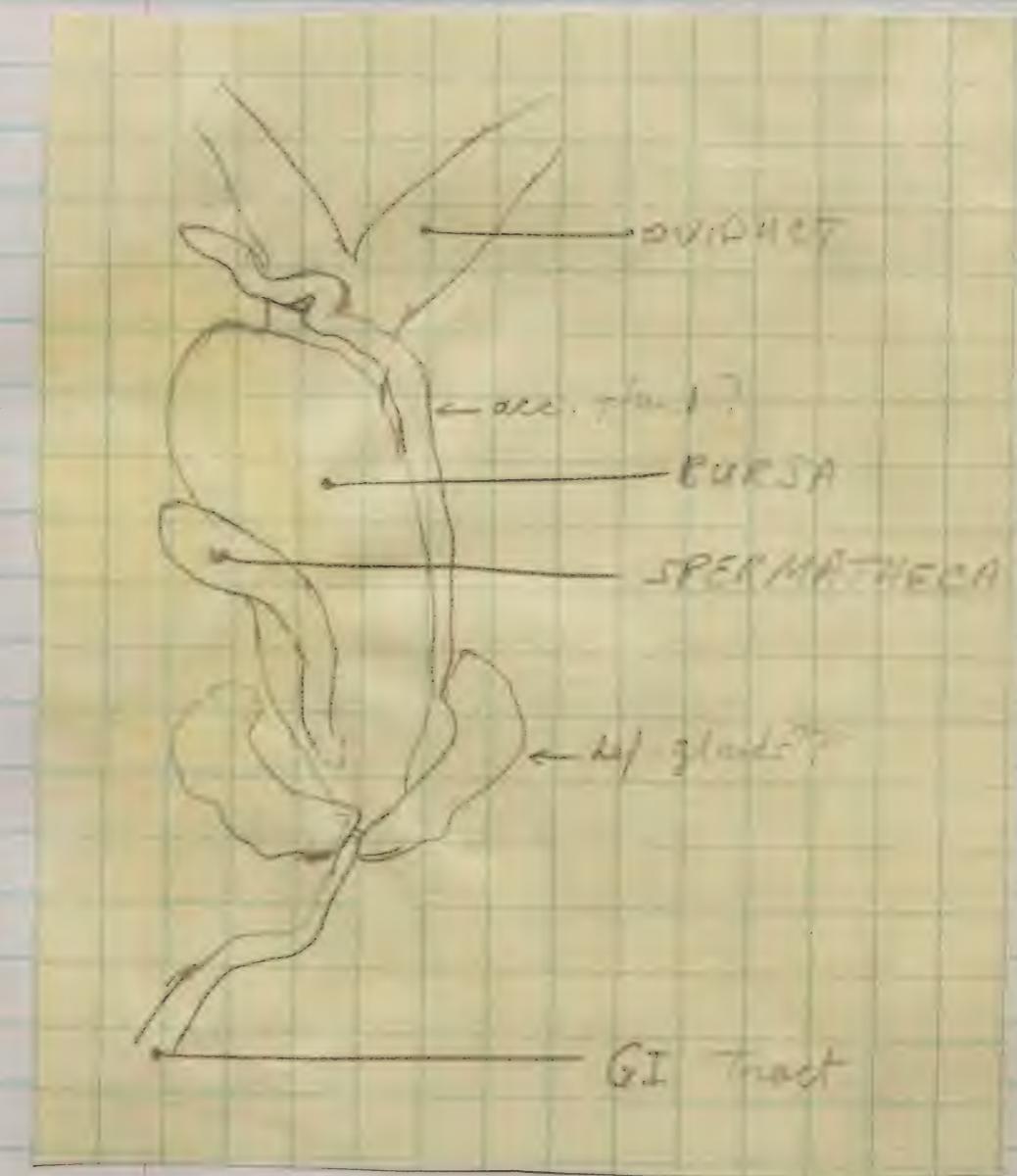
[exp. continued on p. 40]

92

24 Sept 1967

42

Chaetognathus ♀ genital system.
coll. Postal Road.



SH

42 pg

26 Sept. 1967

CHAULIOGNATHUS PRONOTAL PATCH

13:05 4 Chauliognathus, 3 ♀ and 1 ♂, ~~████████~~
(coll. vic. Portal-Rodeo Rd 24 Sept '67
by sweep-ing from car, R.S.) were placed
on goldenrod under a net bag closed
w/ a string. All 3 ♀ had
distinct pronotal patches.

39

SUMMARY OF EXPERIMENTS WITH CHRYSOPID LARVAE

Arizona, 1967

2. Silberzlied

VERSUS ARMY ANTS (*Neivamyrmex* sp.)

2 fluffpuffs, 1 naked, 1 with fluff, were placed in trail of ants in a plastic cassette. Naked one ~~danced~~ and stung; immobile in 5 minutes. One with fluff alive and moving 1 hr & 10 min. later.

Same experiment repeated. After 18 min. the naked one is on its back, stung and immobile. One with fluff alive & moving.

PREY OF LEAF-NESTING SPIDERS FOUND IN WEBS (NATURAL)

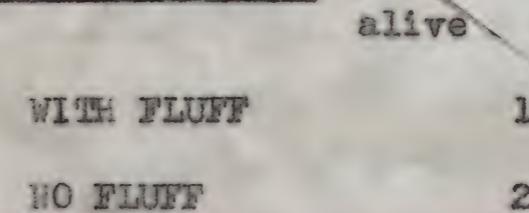
WV-1

SPIDERS VERSUS CHRYSOPID LARVAE

12 cassettes set up as

1	leaf web	we
2	leaf web	we
3	leaf web	we
4	leaf web	we
5	no web	we
6	no web	we
7	no web	ru
8	no web	ru
9	leaf web	we
10	leaf web	we
11	leaf web	we
12	leaf web	we

Cumulated data:



VERSUS A WHIPSCORPION

Small whipscorpion (about 17 mm) found petri dish with naked larva. Naked larva found dead on bottom because of crumpled nature of

39

Same whipscorpion placed in a petri dish with a moving larva. Whipscorpion observed to attack the moving larva with its pedipalps and chelicerae. Each time the fluff was touched, the later remains of larva's fluff were eaten.

39

SUMMARY OF EXPERIMENTS WITH CHRYSOPID LARVAE

Arizona, 1967

R. Silberglied

VERSUS ARMY ANTS (*Neivamyrmex* sp.)

2 fluffpuffs, 1 naked, 1 with fluff, were placed in trail of ants in a plastic cassette. Naked one ~~was~~ was stung and stung; immobile in 5 minutes. One with fluff alive and moving 1 hr & 10 min. later.

Same experiment repeated. After 18 min. the naked one is on its back, stung and immobile. One with fluff alive & moving.

PREY OF LEAF-NESTING SPIDERS FOUND IN WEBS (NATURAL)

"Yellow running spider": nests bare except for mites, cicadellids (alive), and cicadellid exuviae

"Marred, leaf nesting spider": -Sycamore-fluff found in webs, plus: Arthropods found in webs included:
Cecidomyiid flies
Staphylinid beetles
Mites
Cicadellid bugs
Tingid bugs
Chalcidoiid Hymenopterans
TrichoGrammatid wasp
Muscid flies
Gallipnoriid fly

ed data:
FLUFF
UFF

IPSCORPION

Scorpion (about 17 mm) placed in petri dish with naked larva found dead on bottom of crumpled nature of fluff.

Scorpion placed in dish with larva. Scorpion observed to attack larva with its pedipalps. Each time the fluff remains of larva's fluff is eaten.

39

SPIDERS VERSUS CHRYSOPID LARVAE

12 cassettes set up as

1	leaf web	we
	web	we
	web	we
	web	we
	web	we
	web	we
	web	we
	web	we
	web	we
	web	we
	web	we
	web	we

alive
1
2

39

39 54

SUMMARY OF EXPERIMENTS WITH CHRYSOPID LARVAE

Arizona, 1967

R. Silberzlied

VERSUS ARMY ANTS (*Neivamyrmex* sp.)

2 fluffpuffs, 1 naked, 1 with fluff, were placed in trail of ants in a plastic cassette. Naked one ~~drowsy~~ & stung; immobile in 5 minutes. One with fluff alive and moving 1 hr & 10 min. later.

Same experiment repeated. After 18 min. the naked one is on its back, stung and immobile. One with fluff alive & moving.

PREY OF LEAF-NESTING SPIDERS FOUND IN WEBS (NARRATIVE)

8v-1.

SPIDERS VERSUS CHRYSOPID LARVAE

12 cassettes set up as follows:

1	leaf web	web-spinner	2 larvae with fluff
2	leaf web	web-spinner	2 larvae with fluff
3	leaf web	web-spinner	2 larvae; no fluff
4	leaf web	web-spinner	2 larvae; no fluff
5	no web	web-spinner	1 larva with fluff
6	no web	web-spinner	1 larva; no fluff
7	no web	running spider	1 larva with fluff
8	no web	running spider	1 larva; no fluff
9	leaf web	web-spinner	2 larvae with fluff
10	leaf web	web-spinner	2 larvae with fluff
11	leaf web	web-spinner	2 larvae; no fluff
12	leaf web	web-spinner	2 larvae; no fluff

Cumulated data:	Alive		Dead sucked dry	not eaten
	alive & moving	pupated		
WITH FLUFF	1	4	4	1
NO FLUFF	2	3	3	2

VERSUS A WHIPSCORPION

Small whipscorpion (about 17 mm, not incl. whip), placed in small round petri dish with naked Chrysopid larva. 14 hr., 45 min. later naked larva found dead on bottom of petri dish, assumed eaten or killed because of crumpled nature of skin.

Same whipscorpion placed in cassette with fully fluffed larva. Whipscorpion observed to attack larva 4-times, each time grabbing the moving larva with its pedipalps and pulling it in towards its chelicerae. Each time the fluffpuff was released alive. 24 hr., 25 min. later remains of larva's fluff found in cassette; no larva. Assumed it was eaten.

Result:

Both pupated
Both dead, sucked dry
One dead & sucked dry.
other pupated
Both dead, but not eaten
Dead, sucked dry
Dead, sucked dry
Dead, not eaten
Pupated
One alive, other pupated
Both pupated
Both alive
One dead & sucked dry,
other pupated.

43

PE

43

Selenops
Actophilus
(WALL SPIDER) Ch.

Olios fasceolatus
(GIANT CRAB SPIDER)

Misumena vatia Ch

Epeorus spes

Form I + II

Form III and

Lycosa vittata
Ch + I

EP

Label ARIZONA material

Elaterid paper

"seminar" - get info on field exp.

Periplaneta

1. set up smaller cages by "day after
moultng"

2. morphology - try chitosol block
to find more sensitive areas

a. describe surfaces

b. look at sensillal

3. pain = det ① heat (heat)
(needle?) temp det?

② kind of substances

③ concentration

④ application methods

⑤ # responses / AREA

STATISTICAL TOOLS

4. describe all cleaning reflexes

Biol. Note 16 (Conasida) parasite.

Exp. Nos. WITHOUT SPECIMENS:

283. Papilionids (Aristolochia) caterpillars.

286 Caterpillar vs. centipede

288 Elaterid vs. "

289 " vs. solpugid

290 Brachystola - tibial spurs (specimen, not hd)

292 State Line Road QUEEN.

294 Queen hair pencil secretion

296 ~~Pectin Reduct. & Ms. Maffei~~

297. Pasytachus (CCR)

298 " vs elaterid

299 Triatoma? (CCR-UR) vs elaterid

OVER

ΣA

39

Chrysopid 468 = Chrysoperla perfecta Banks
Specimens held by Ellis McIver
Other eggs are Zonalmaya sp.
ref in Ps of the 6

39

26 Sept. SPIDERS vs. CHRYSOPID LARVAE
CONTINUED FROM p. 31-35
16:25 4 Cassettes set up as follows:

39

- (1) all cassettes have one spider in leaf web
- (2) First 2 cassettes have 2 larvae, with fluff, in each (#9, 10)
Second 2 cassettes (#11, 12) have 2 larvae, without fluff (naked) in each.

9 } 2 larvae ea. + fluff } web spinning
10 }
11 } 2 larvae ea., naked } spider +
12 } leaf nest.

- 26 Sept 9 LEAF NESTER w/ LEAF NEST
 vs 2 FLUFFY LARVAE
- 16:25 START
 21:40 NO ACTION. 2 FLUFFS FREE + MOVING.
 SPIDER IN RETREAT
- 27 Sept. SPIDER IN RETREAT. BOTH FLUFFPUFFS
 12:48 ALIVE + MOVING. ONE IS UNDER
 SILK STRANDS OF WEB AND HAS
 LEFT TRAILS OF FLUFF.
- 29 SEPT 1:09 SPIDER HAS NEW RETREAT ON SIDE OF
 CASSETTE; ONE LARVA HAS PUPATED
 IN WEB; OTHER HAS LOST FLUFF
 AND IS SUSPENDED IN WEB IN MIDAIR.
- 2 OCT 3:41 SAME AS 29 SEPT. ONE LARVA
 STILL ALIVE ^{+ MOVING}
 (other pupated) ~~TERMINATED~~
- 26 Sept 10 LEAF NESTER w/ LEAF NEST
 vs 2 FLUFFY LARVAE 39
- 16:25 START
 21:45 NO ACTION. SPIDER IN RETREAT. 2
 LARVAE FREE + MOVING.
- 27 Sept 12:49 BOTH LARVAE ALIVE + MOVING.
 SOME FLUFF SEEMS TO HAVE
 BEEN LOST IN WEB THAT WAS
 FRESHLY SPUN BETWEEN LEAF
 AND CASSETTE. SPIDER IN RETREAT.
- 29 SEPT. 1:17. ONE LARVA PUPATED IN WEB; OTHER
 ALIVE + MOVING ON LEAF. SPIDER IN
 RETREAT
- 2 OCT 3:43 BOTH LARVAE NOW PUPATED.
 SPIDER IN RETREAT
~~TERMINATED~~

(11)

LEAF NESTER w/ LEAF NEST
vs 2 NAKED LARVAE

Sept

16:25

START

21:48

NO ACTION. SPIDER HAS LEFT
RETREAT. BOTH LARVAE ALIVE &
MOVING; SOME FLUFF REMOVED
THAT THEY ACCUMULATED

27 Sept

12:51

SPIDER HAD BUILT NEW RETREAT
ON TOP OF CASSETTE; DESTROYED
WHEN CASSETTE OPENED. BOTH LARVAE
ALIVE & MOVING, I REMOVED THEIR
ACCUMULATED FLUFF.

29 SEPT.

1:20

SAME AS ABOVE; RETREAT DESTROYED,
BOTH LARVAE ALIVE; FLUFF REMOVED.

2 OCT

3:44

BOTH LARVAE ALIVE & MOVING,
SPIDER IN RETREAT
TERMINATED

(12)

LEAF NESTER w/ LEAF NEST
vs 2 NAKED LARVAE

26 Sept.

16:25 START

21:49. SPIDER IN RETREAT. CHRYSOPIDS
ARE (1) BELOW SHEET OF WEB,
WHERE IT IS LOADING w/ FLUFF
AND CICADELLID NYMPHAL SKINS, AND
(2) ON SIDE OF CASSETTE WITH ACCUM-
ULATED FLUFF. I REMOVED ALL
ACCUMULATED FLUFF.

27 Sept.

12:54

SPIDER IN RETREAT. BOTH
LARVAE ALIVE & MOVING.

29 SEPT

1:23

SAME AS BEFORE; BOTH LARVAE ALIVE
& MOVING; FLUFF REMOVED; SPIDER IN
RETREAT.

2 OCT

3:45

~~ONE~~ ONE LARVA PUPATED.
THE OTHER DEAD ON BOTTOM
OF CASSETTE & APPARENTLY
SUCKED DRY. TERMINATED

39

39

PE

CUMULATED SPIDER DATA. 28 SEPT.

WITH

FLUFF (17)

	\$			+
	do	do	do	+

1 4 4 1

WITHOUT

FLUFF (10)

	#	#	#	#
	2	3	3	2

ALIVE +
MOVING

PUPATED

EATEN
~~SPIDER~~ NOT
EATENALIVEDEADNAMES OF INSECTS OF PORTAL AREA
TO BE CHECKED AGAINST THOSE
COLLECTED AND LARGE COLLECTIONS.

ORTHOPTERA:

Bright colored ACRIDID: Dactalotum varigatum
 Crested green ACRIDID: Trapidolophus formosus
Taenioptoda is eques
Brachystola is magna
 Giant TETTIGONIID: Capnobates fuliginosus
 Small Desert TETTIGONIID: Dichopterella brevistata

COLEOPTERA:

Bright Desert ~~CLERID~~: Trichodes horni
 Smooth, margined TENEBS: Euschides rimatus
 Rough, margined TENEBS: E. sp.
 Freezing or Running TENEBS: Pelecyphorus morbillosus
 Hemispherical TENEBS: Discoderus reticulatus — Eusattus
 Pepsis-mimic CERAMBYCID: Tragidion sp.
chauliognathus mimicing CERAMBYCIDS:

Tylosus maculatus
Crossidius pulchellus
Tetraopes femoratus [BIG + RED]
Tetraopes discoidens [GRAY]

SEE ALSO: Anoplodera spp.

MISCELLANEOUS:

TABANID @ UVBL sheet: Tabanus dorsifer
 REDUVIID that feeds on Chrysopid Larvae: Pselliopus
 BIG RED (sticky) REDUVIID: Apiomerus

HYMENOPTERA - BUSH = BACCHARIS.

Courtesy A.M.N.H ref. colln.
 @ S.W. Res. Sta.; in particular,
 courtesy Vince Roth.

ALSO: Large black + red meloid = ~~do~~ Megestra cancellata championi VanDyke

Black meloid that mimics (?) freezing TENEBS:

Epicauta corvina Clec.

ΣΑ

41

Impatiens rotunda





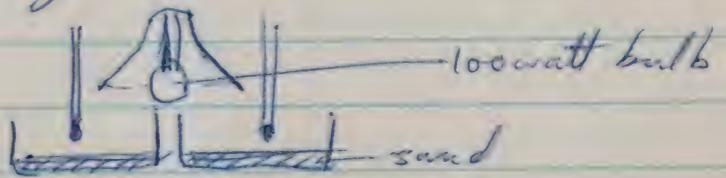
1A

IA

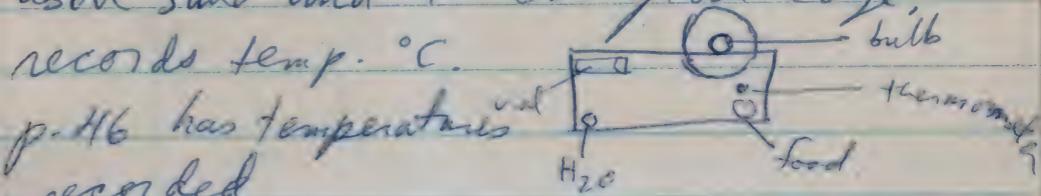
45°

12 Dec. 1967. Two identical cages set up
20:32 with $\frac{1}{2}$ " to 3 $\frac{1}{2}$ " sand; Pablum
mixed cereal on a small Petri dish
cover; one large 12-dram vial, clean
and without top; and test tube
of distilled water with sponge tip,
inverted and hung from side of cage.
Cages are 8x12 white plastic.

~~—~~ 100 watt bulb shines on both
cages and its light & heat
are evenly divided between them.



Thermometers in both cages, 1 cm
above sand and 40 cm from edge,
records temp. °C.
p-46 has temperatures ^{and} recorded



24

Date	Time	°C R/L	°F R/L	Comments	Date	Time	°C R/L	°F R/L	Comments
12 Dec	17:45	31 31	88	turned on before					
12 Dec	20:32	35/35	94	steady					
13 Dec	1:30	39/35	94	"					
13 Dec	15:00	35/35	94	"					
14 Dec	00:34	35/35	94	"					

45

24

12 Dec.

20:32

45 "

Two beetles added to each cage, 2 ea.
R has normal Eleodes longicollis,
L has 2 Eleodes longicollis that had
their elytra removed on 8 Dec. 1962.
Until this time they have been in a cage
with "normal" Eleodes longicollis, and,
although not observed continually, showed
no obvious differences in behavior
from the "normals". They would mate
& be mated, etc.

LYCIDS

44

8 Feb 1968 I have had 8 larvae of Lybrids
9:45 AM that I kept since Arizona, in

Sept 1967 when they were
collected. All were found on Cave
Creek on Cave Creek Ranch,
along the stream bed.

Emergences:

		<u>emerged</u>	<u>died</u>
1	♂	late Dec. late Jan	early Jan late Jan
1	♂	late Jan	early Feb 15 Feb
1	♂	before 3 Feb	18 Feb '68
1	♀	{ betw. 12 midnight and } 9:45 AM, Feb 7-8	23 Feb '68
1	♀	{ betw. 12 midnight and } 10:30 AM, Feb 18-19	{ Mar. 68 } ~ 8 PM Mar 68
1	♀	6-7 March 1968	10-12 Mar '68 (killed)

1 ♂ 10-12 Mar 1968

1 ♂ 10-12 Mar 1968

1 ♀? 12-14 Mar 1968 20 Mar 68

PP

31 March 1968

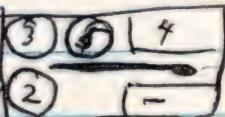
EXPT. # 45

Experiment to test hypothesis: Does the presence or absence of elytra on the backs of Tenebrionid beetles confer any survival advantage under hot, or dry, or both, conditions.

Materials.

• 5 Eleodes sp(?), second generation, all progeny of Eleodes sp(?) collected at Cave Cr. Ranch, n.e. Portal, Arizona, Sept 1967; progeny all emerged within 5 days of one another; larvae were reared in same containers and underwent same cooling period to break diapause. All now about 1 month old.

5 containers, 3 round, 2 rectangular, (4-4.5 cm rad.) (6.7 cm x 6.7 cm x 12 cm height) all filled w/ about $\frac{3}{4}$ inch of sand.



thermometer

1 large container holding above containers, and thermometer

1 thermometer. $^{\circ}\text{C} = -10 \text{ to } 150$.

24

Method

45'

Adults prepared by

- (1) pinning down on proton block, venter up
- (2) cutting around as follows
 1. elytra cut off
 2. elytra cut off + replaced, ^{centrally}
 3. elytra cut around but not off
 4. elytra intact
 5. elytra w/ hole cut in top,
~1 cm in diam.
- (3) ~~beetles put into containers,~~
~~one apiece~~
- (4) beetles rinsed w/ dist./led H₂O

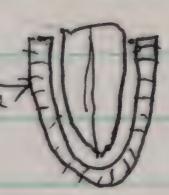
31 Mar.
17:00 hr.

45

#1. placed ^{and pinned} on back, elytra cut around;
turned over on belly to remove.
Beetle washed, put in container;
beetle discharged quenches during operation.

#2 placed & pinned on back; elytra cut
around, turned over on ventral to
remove ^{the elytra} in one piece; elytra soft
at bases; and curled over;

seal cement applied 
to all edges except apex, placed
on beetle affixed to cork, 
cement fused all around,
except apex (last 2 sternites)
w/ hot needle. Beetle washed,
put in container. Beetle discharged
during operation; it also injured
right prothoracic leg @ fibro-femoral
joint.

#3 placed & pinned on side on protein
block, left side cut; right side
done in hand, beetle cut all
around except @ base 
beetle washed +
placed in cassette.
Beetle discharged quenches during
operation.

24

45

#4. beetle pinned down on venter,
left under light; then on dorsum,
left under light; washed off
and placed on container.
Beetle has tibia of left mesothoracic
leg broken w/ distal part missing,
also has same for left mesothoracic
leg's tarsus. Beetle did not discharge
gut hormones although tried to make it do so.

#5 beetle pinned on venter and
~1 cm diam hole cut in dorsum
of elytra. beetle washed, and
put into container. Beetle discharged
gut hormones while being washed

→ Squeezed legs w/ forceps
opened oper. of abd. w/ forceps

31 Mar. (800 hr.) — large container put
under gooseneck lamp.

24

45°
°F

date	time	temp °C	°F
31 Mar	18:00	25	76
	19:00	30	86
	20:00	32	90
1 April	10:00	32	90
	20:00	32	90
2 April	17:00	32	90
3 April	10:30	32	90
4 April	11:50	31	87
	22:35	30	86
5 April	23:10	31	87
8 April	10:55	32°	90
9 April	10:45	33°	
11 April	12:50 > DEAD	34°	

24

45

#1 1 April 20:00 alive and O.K.

2 April 21:00 dead, tissues shriveled



#2 1 April 20:00 alive and O.K.

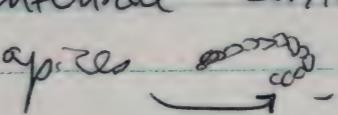
2 April 17:00 alive & O.K.

3 April 10:30 alive & O.K.

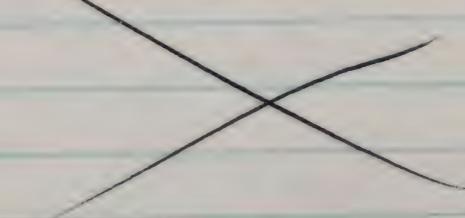
4 April 00:20 alive & O.K.,

right foreleg seems crippled,
doesn't bend at femur-tibia joint.

22:35 alive, sluggish,
antennae curled under at
apices



5 April 23:10 died



24

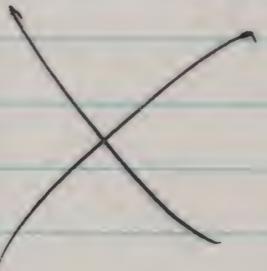
45

#3

1 April, 12:00. On back, legs and antennae shaking and quivering

1 April, 20:00 still on back & quivering

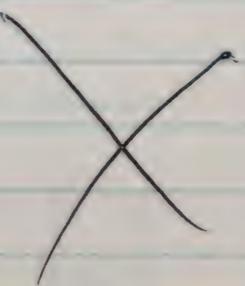
2 April 17:00 dead, on back



#4

1 April 20:00 alive and O.K.

2 April, 17:00 dead, dried out ^(fins gone)



#4

1 April 20:00 alive and O.K.

2 April 17:00 alive and O.K.

3 April 10:30 alive and O.K.

4 April 00:20 alive and O.K. covered w/sand particles on pronotum and elytra

4 April, 11:50 alive and O.K.

4 April 22:35 alive and O.K.

5 April 23:10 alive & O.K.

5 April 23:45 dead

24

EXPT # 46

3 April 1968

81.15.00

4 Eleodes spp. from San Agustin Pass, N Mex., 3 Oct. 1967 (- R.S.), were prepared as follows.

Each beetle was fitted with a number (#1, 2, 34) glued on the dorsum of the prothorax with feral cement, using a hot needle.

~~Beetles were~~

Beetle #1 - elytra intact

Beetle #2 - elytra removed

Beetle #2 - ~~had~~ hole made in elytra about 5 mm. in diameter

Beetle #3 - same as no. 2, but piece of elytron glued ~~to~~ over its ~~#~~ the hole with feral cement.

Beetle #4 - same as no. 2 but piece of transparent plastic glued in place with feral cement.

Beetles put into containers they came from after being washed w/ distilled water.

38

46°

21:00 put all beetles into cassettes
~~a box~~ ($6.7 \times 6.7 \times 12.5$ cm)
 (clear plastic) w/ < 1 cm sand in
 bottom and small card for shade
 in a large plastic box,
 approx. $10'' \times 13'' \times 4''$. Each beetle
 weighed (see next page). Thermometer
 added and put under a 60 watt
 incandescent lamp in a fooseneck
 base, ≈ 2 cm from top of case

3 April	23:00	27°C	(80°) F
4 April	00:30	36°C	(96°) F

moved lamp to 3.5 cm from top of
 case

4 April	10:30	36°	(96°) F
---------	-------	--------------	--------------------

4 April

moved lamp to 8 cm from top of box
~~the~~ removed box for weighing
 (see 2 pages after this) (p 61)
 Temperature during weighing
 11:00 24.5°C (°F)

11:50 put back under lamp,
 (60 w) at 8 cm betw/ box and lamp.
 12:30 33°C (91°)
 17:40 35°C (95°)
Corr 1.0
End 63

34

46

3 APRIL > weights of beetles at beginning of
20:00 > feet.

tare	1	tare	2
5.64133	6.08834	5.64158	6.02667
5.64136	6.08834	5.64169	6.02662
5.64137	6.08832	5.64163	6.02660
5.64137	6.08833	5.64168	6.02662
5.64139	6.08831	5.64164	6.02656
(28.20682)	(30.44164)	(28.20822)	(30.13307)

tare	3	tare	4
5.64252	6.11707	5.64309	6.02178
5.64247	6.11702	5.64310	6.02179
5.64253	6.11696	5.64303	6.02172
5.64245	6.11690	5.64302	6.02171
5.64250	6.11692	5.64304	6.02168
(28.21247)	(30.58487)	(28.21528)	(30.10868)

tare
5.64282
5.64281
5.64291
5.64302
5.64298
(28.21454)

3A

46

4 APRIL

11:00

<u>tare</u>	<u>1</u>	<u>tare</u>	<u>2</u>
5.64206	6.06243	5.64252	5.98941
5.64214	6.06236	5.64248	5.98943
5.64214	6.06238	5.64247	5.98941
5.64218	6.06234	5.64243	5.98940
5.64256	6.06235	5.64248	5.98935
5.64252	(30.31186)	(28.21238)	(29.94700)
5.64253			
5.64254			
5.64257			
(28.21272)			

<u>tare</u>	<u>3</u>	<u>tare</u>	<u>4</u>
5.64255	6.08704	5.64320	5.99232
5.64256	6.08701	5.64318	5.99232
5.64259	6.08698	5.64315	5.99232
5.64271	6.08697	5.64310	5.99231
5.64266	6.08694	5.64308	5.99232
(28.21307)	(30.43494)	(28.21571)	(29.96159)

tare

5.64309
 5.64307
 5.64310
 5.64309
 5.64311
 (28.21546)

34

4 April

22:35

33°C (°F)

23:15

30°C

(86 °F)

46

• 23:15 removed for weighing, see p. 64

23:55 back to light [at 24.5 °C]

23:55 24.5 °C (°F)

5 April

~~23:30~~

23:30 33°C (°F)

removed and weighed, see p. 65

• put back to light

23:55 24.5 °C (°F)

6 April

10:55

34°C (°F)

#2 and 3 are dead

removed and weighed @ 11:00.

see p. 66.

put back to light

12:30 25°C (°F)

7 April

23:30

32°C (°F)

weighed, see p. 69. #4 dead. Put at 25

8 April

00:05

24.5 °C (°F)

9 April

12:55

33°C (°F)

weighed (x20) all are now dead. terminated

46

4 April tare 1 tare 2

23:20

5.64137	6.04773	5.64184	5.96269
5.64139	6.04776	5.64158	5.96272
5.64146	6.04784	5.64166	5.96275
5.64152	6.04791	5.64167	5.96276
5.64159	6.04792	5.64170	5.96270
5.64162 (30.23716)	(28.20815)	(29.81632)	
5.64164			
5.64162			
5.64171 (28.20813)			

<u>tare</u>	<u>3</u>	<u>tare</u>	<u>4</u>
5.64162	6.06526	5.64188	5.97239
5.64168	6.06528	5.64191	5.97240
5.64190	6.06534	5.64194	5.97252
5.64192	6.06535	5.64202	5.97256
5.64198	6.06543	5.64204	5.97258
(28.20910)	(30.32666)	(28.20979)	(29.86245)

tare
5.64188
5.64190
5.64196
5.64202
5.64204
(28.20980)

34

46

5 April tare 1 tare 2
23.30

5.64084	6.01886	5.64099	5.92268
5.64096	6.01889	5.64106	5.92273
5.64113	6.01890	5.64107	5.92278
5.64114	6.01894	5.64112	5.92280
5.64121	6.01893	5.64117	5.92287
5.64123	(5.64123)	(28.20541)	(29.61386)
5.64129	(30.09452)		

5.64135
5.64138
(28.20546)

tare

5.64187	6.02382	5.64210	5.94858
5.64190	6.02386	5.64218	5.94859
5.64195	6.02395	5.64221	5.94868
5.64198	6.02397	5.64225	5.94864
5.64206	6.02392	5.64228	5.94867
(28.20546)	(30.11952)	(282.1102)	(29.74316)

tare

5.64269
5.64272
5.64278
5.64283
5.64285
(28.21387)

34

46

8 April 1200

FareFare

(DEAD)

5.64339	5.94903	5.64434	5.81348
5.64338	5.94901	5.64432	5.81348
5.64341	5.94901	5.64429	5.81346
5.64342	5.94900	5.64424	5.81354
5.64341	5.94902	5.64420	5.81353

(28.21701) (29.74507) (28.22239) (29.06749)

Fare (DEAD)3Fare

4

5.64419	5.89129	5.64414	5.86008
5.64419	5.89129	5.64410	5.86008
5.64423	5.89126	5.64413	5.86014
5.64420	5.89125	5.64412	5.86014
5.64420	5.89128	5.64411	5.86016

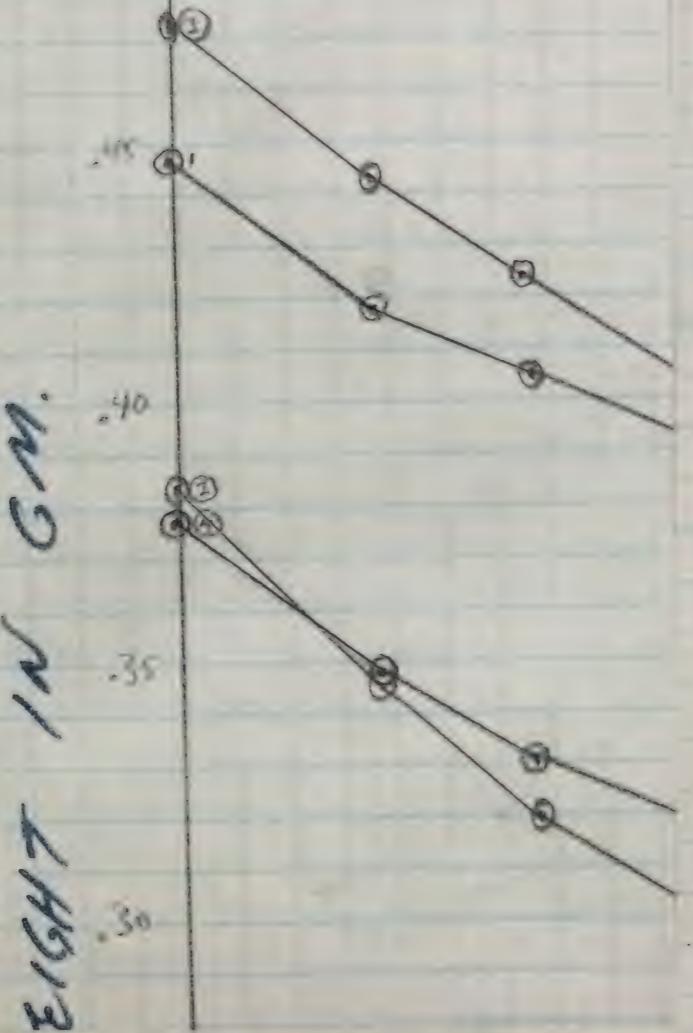
(28.22101) (29.45637) (28.22060) (29.36060)

Fare

5.64440
5.64432
5.64434
5.64432
5.64437
(28.22175)

46

46

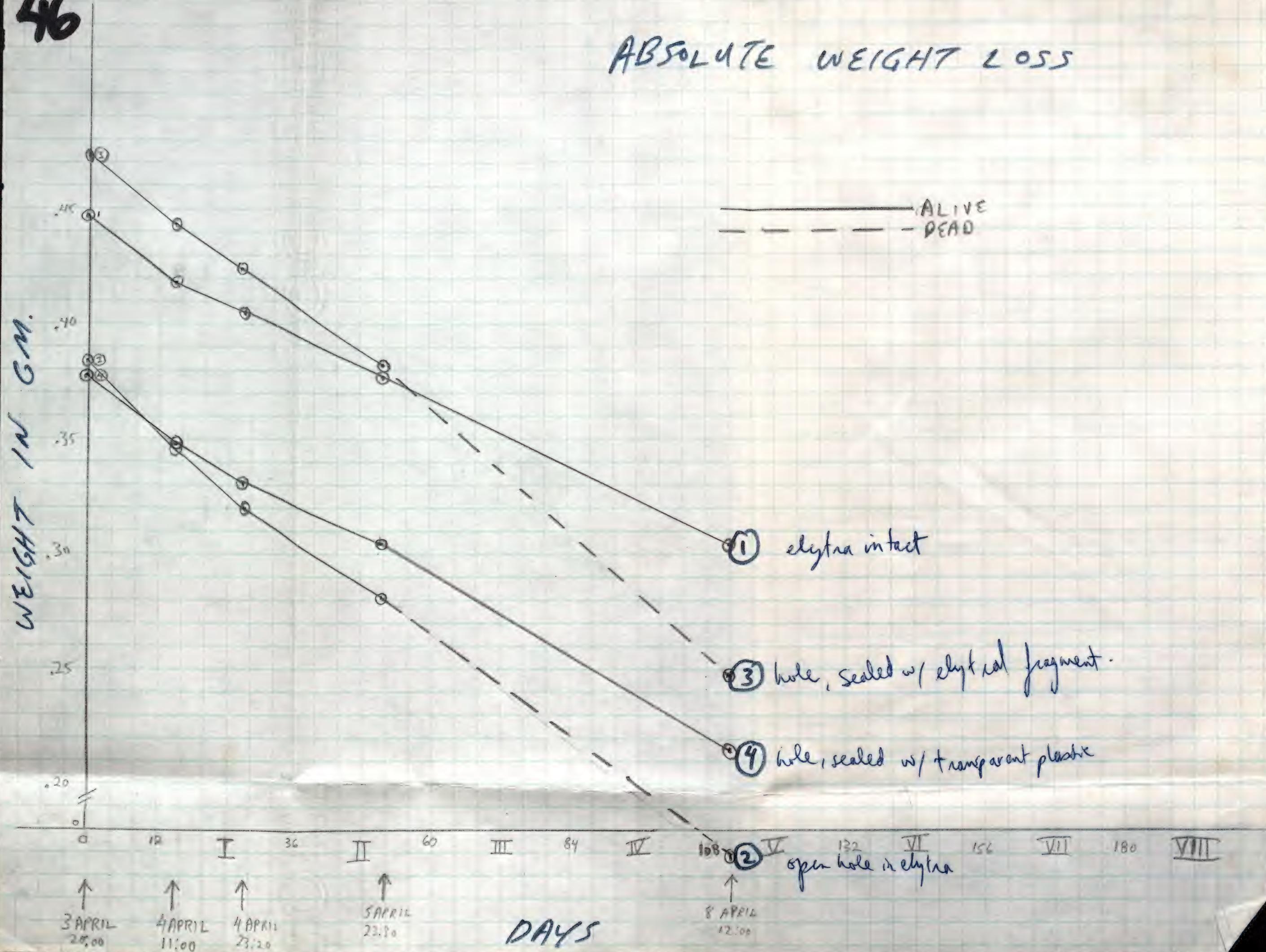


		1	2	3	4
3 April	weight (meas.)	6.088328	6.026614	6.116974	6.021736
-	tare (after)	5.641644	5.642494	5.643056	5.642908
	weight (final (beetle))	0.446684	0.384120	0.473918	0.378828
	Δ weight				
4 April	weight (meas.)	6.062372	5.989400	6.086988	5.992316
- 11:00	- tare (after)	5.642476	5.642614	5.643142	5.643072
	weight (beetle)	0.419896	0.346786	0.443846	0.349226
	Δ weight	0.026788	0.037334	0.030072	0.029602
4 April	weight (meas.)	6.047832	5.962724	6.065332	5.972490
- 23:20	- tare (after)	5.641630	5.641820	5.641958	5.641960
	weight (beetle)	0.406202	0.320904	0.423374	0.330530
	Δ weight	0.013694	0.025882	0.020472	0.018696
5 April	weight (meas.)	6.018904	5.922772	6.023904	5.948632
- 23:30	- tare (after)	5.641082	5.641952	5.642204	5.642774
	weight (beetle)	0.377822	0.280820	0.381700	0.305858
	Δ weight	0.028380	0.040084	0.041674	0.024672
8 April	weight (meas.)	5.949014	5.813498	5.891274	5.860120
- 12:00	- tare (after)	5.644278	5.644202	5.644120	5.644350
	weight (beetle)	0.304826	0.169296	0.247159	0.215770
	Δ weight	0.072996	0.011524	0.134546	0.090088
9 April	weight (meas.)	.	.	.	.
23:45	- tare (after)	.	.	.	.
	weight (beetle)	.	.	.	.
	Δ weight	.	.	.	.

46

ABSOLUTE WEIGHT LOSS

3 April 2



4 April

3 - 11:00

4 April

23:20

5 Ap

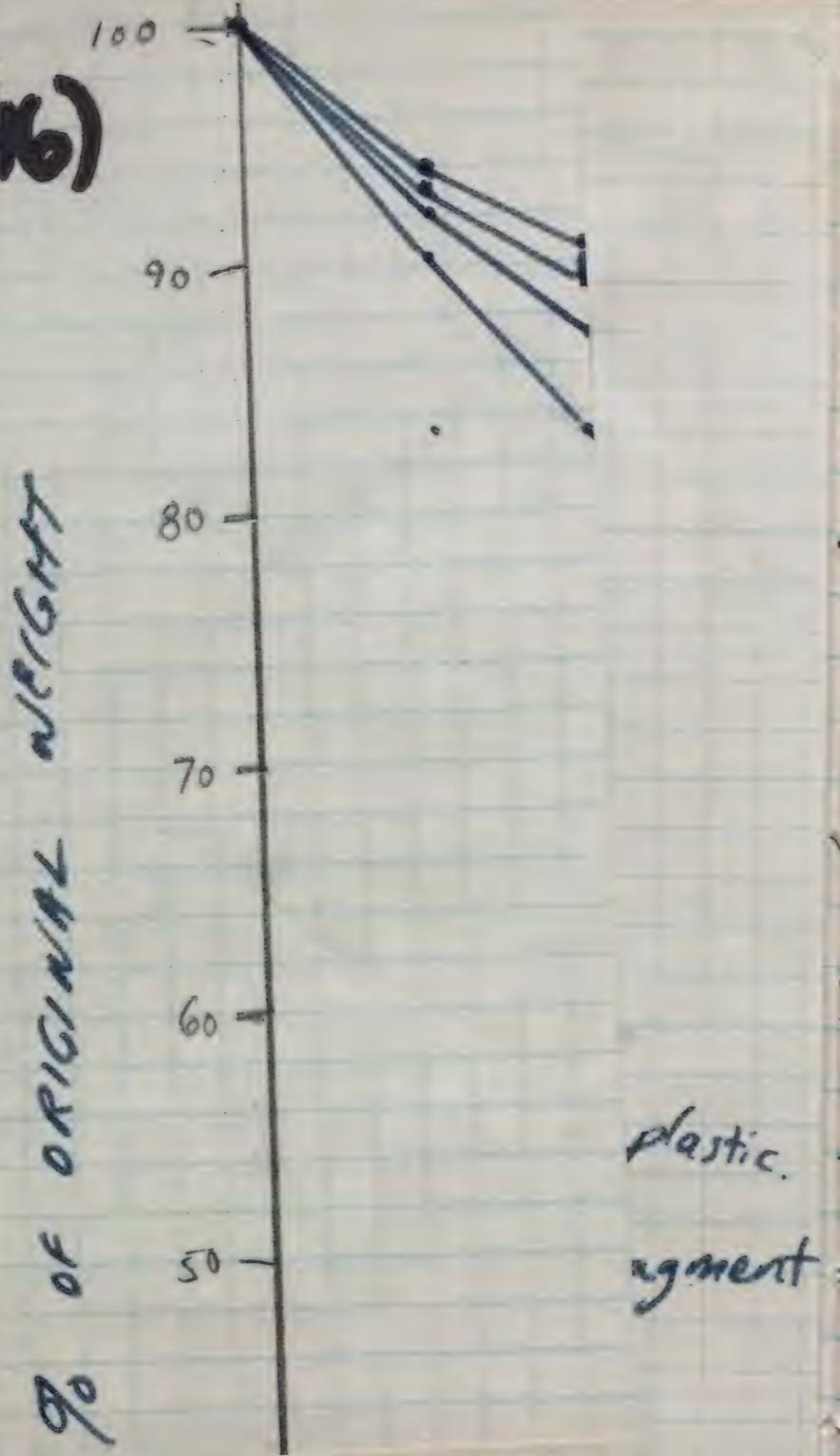
23:30

8 Ap

12:00

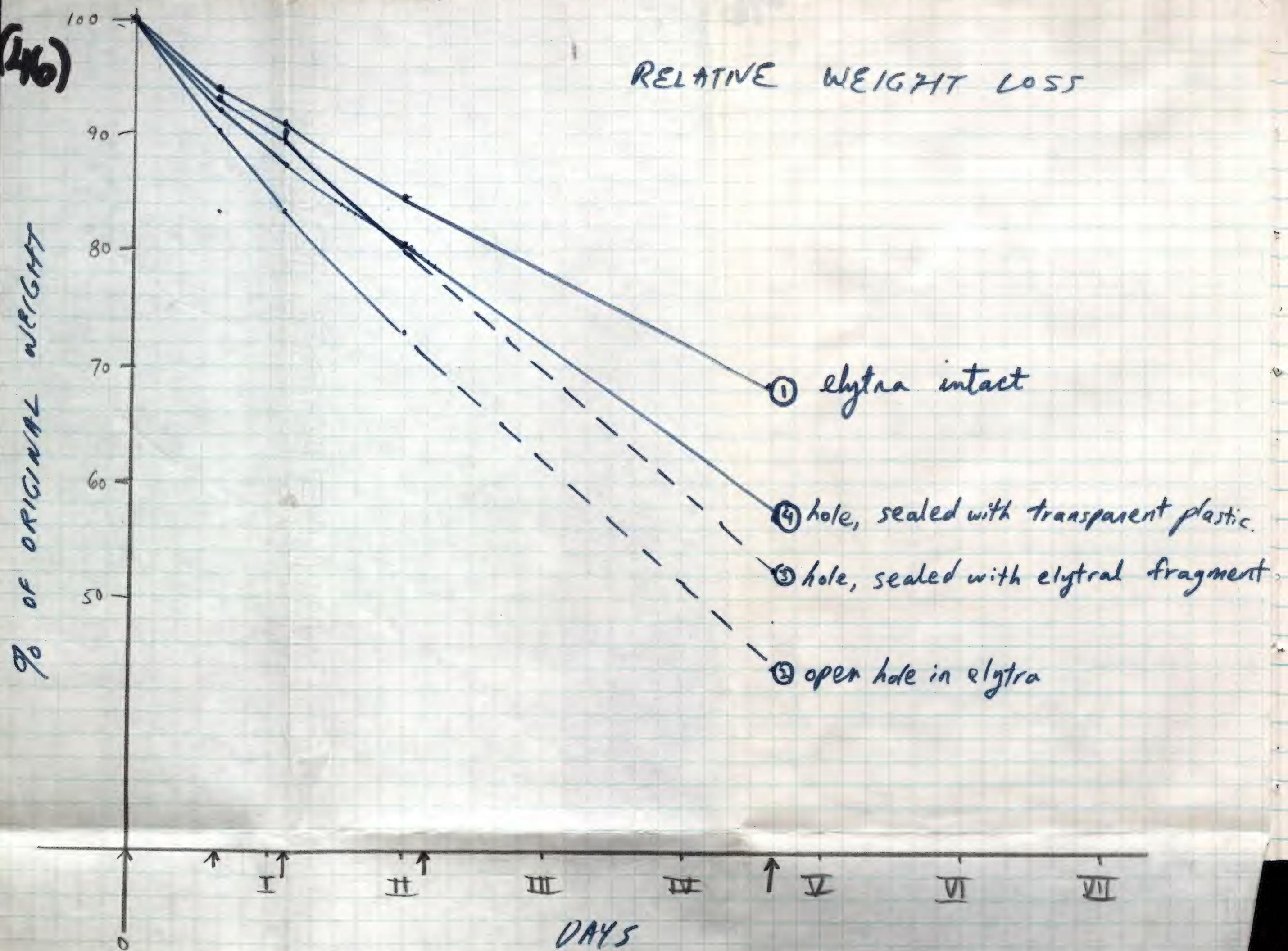
9 A
23:45

(46)



Date	Relative weight				Loss	46
	1	2	3	4		
3 Apr. 20 ²⁰	100	100	100	100		
4 Apr. 11 ²⁰	94.0	90.2	93.6	92.1		
4 Apr. 23 ²⁰	90.9	83.5	89.3	87.2		
5 Apr. 23 ²⁰	84.5	73.1	80.5	80.7		
8 Apr. 12 ²⁰	68.2	(44.0)	(52.1)	56.9		
9 Apr. 23 ²⁰						

plastic
agment



— 34

46

(DEAD)

9 April
23.40

tare

1

tare

2

5.64375 5.88876 5.64425 5.72989
5.64377 5.88877 5.64423 5.72989
5.64382 5.88877 5.64426 5.72990
5.64388 5.88872 5.64429 5.72995
5.64392 5.88880 5.64430 5.72999

() () () ()

(DEAD)

tare

3

tare

4

(DEAD)

5.64426 5.78812 5.64438 5.80132
5.64426 5.78812 5.64434 5.80138
5.64429 5.78810 5.64434 5.80139
5.64426 5.78812 5.64434 5.80142
5.64431 5.78812 5.64436 5.80146

() () () ()

tare

5.64318

5.64312

5.64309

5.64312

5.64311

() |

34

46

(April

12:55 fare

	<u>fare</u>	<u>1</u>	<u>fare</u>	<u>2</u>
	5.64119	5.81630	5.64224	5.71757
	5.64130	5.81623	5.64231	5.71751
	5.64137	5.81624	5.64228	5.71759
	5.64138	5.81635	5.64234	5.71762
	5.64142	5.81639	5.64238	5.71764
	()	()	()	()

<u>fare</u>	<u>3</u>	<u>fare</u>	<u>4</u>
5.64107	5.76006	5.64120	5.74235
5.64113	5.76003	5.64128	5.74230
5.64116	5.76005	5.64128	5.74227
5.64121	5.76005	5.64132	5.74226
5.64126	5.76011	5.64134	5.74228
()	()	()	()

fare
 5.64149
 5.64148
 5.64151
 5.64154
 5.64154
 ()

40

(47)

35

30

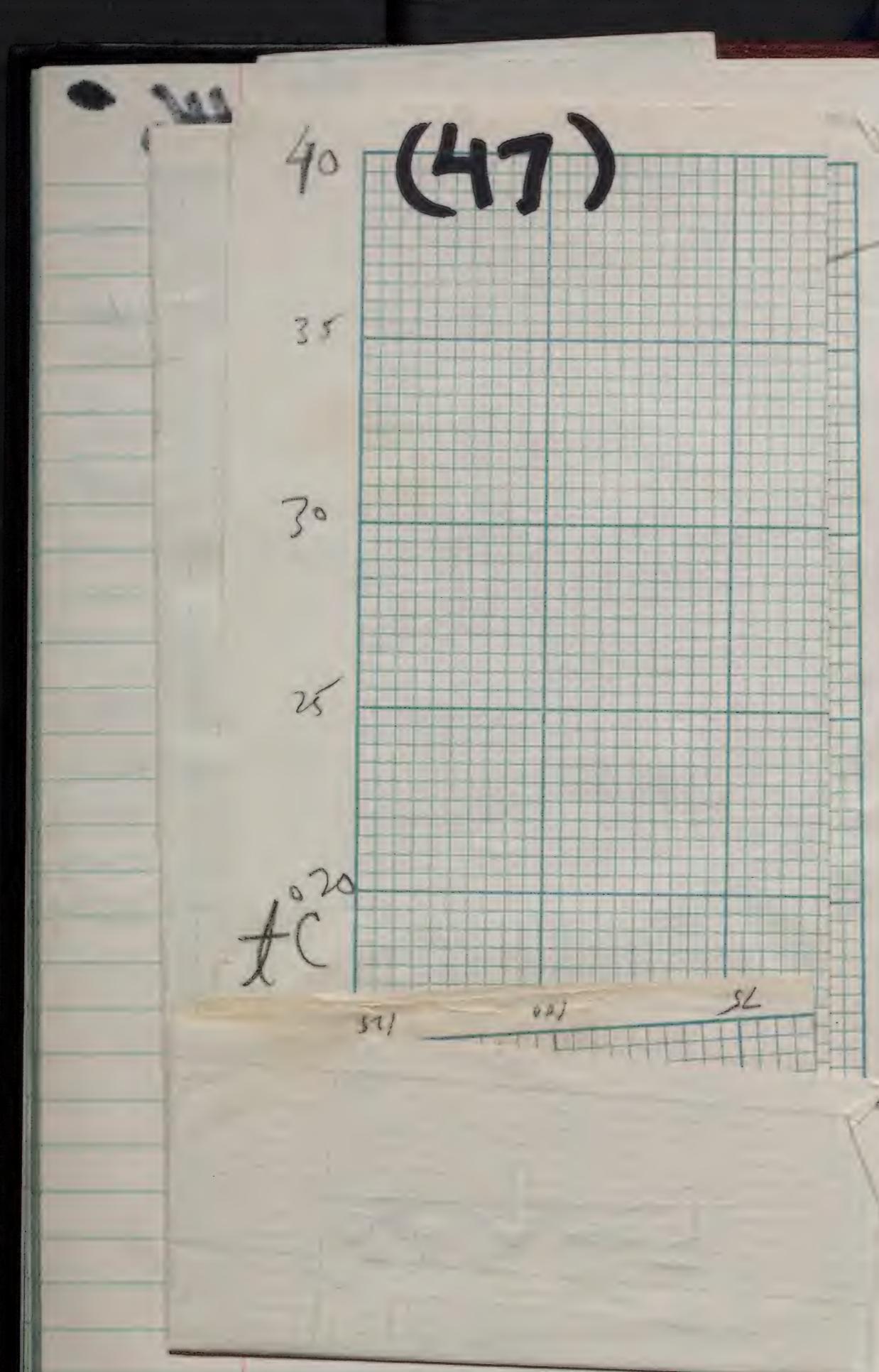
25

t^o₂₀C

571

001

SL



71

48

18 April 1968 16:00

Experiments with 2 *Staphylinids*, coll.
v.e. Langmuir Lab 10 April 1968 R.S.
being fed *Tribolium castaneum* & *confusum*,
synthetic wild types and MSG mutants - LARVAE

~~•~~ *T. confusum* syn.wld: offered, ate in 9 min,
macerated in $\frac{1}{2}$, then ate head end. at
tail it behaved like man with bone in throat,
pushing at head with prothoracic legs, dropping
food from mouthparts, wiping palps +
mandibles in sand and w/ legs.

T. confusum, MSG mutant.

40

(47)

35

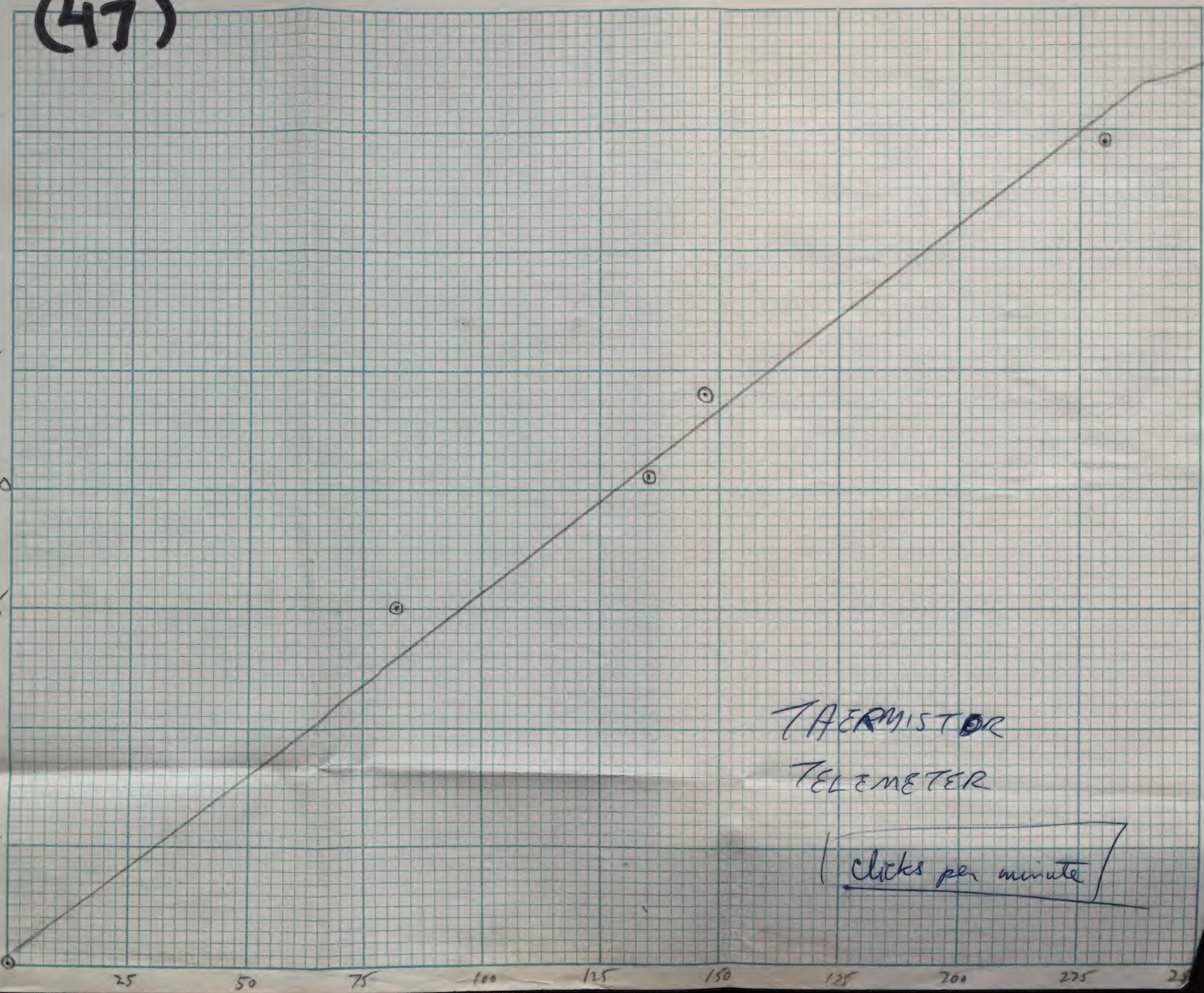
30

25

 $t^{\circ}\text{C}$

20

15

THE EFFICIENCY LINE NO. 10
CROSS SECTIONS 10 SQUARES TO THE INCH

THERMISTOR

TELEMETER

Clicks per minute

84

40

35

30

2

t^c

MINIATURE
PERSONAL ACCOUNT BOOKS
for home and office



NO. 2044 OPEN STOCK

in following rulings

JOURNAL • CASH • S. E. LEDGER

RECORD • D. E. LEDGER



NO. 2044-A ASSORTMENT

consisting of

3 - JOURNAL 3 - CASH 2 - S. E. LEDGER

2 - RECORD 2 - D. E. LEDGER



Made in U.S.A.

DICKMAN'S WAYFARER INN

ROLLA, MISSOURI

ROOM	RATE	DATE	AMT. PAID	RECEIVED BY
33	\$6.00	Sept 13 & 17	\$15	Ray

THIS IS YOUR RECEIPT

THANK YOU

Received from Bob Bergfeld Oct 3 1967

~~Stay and 1/2 U. S. 20 MOTEL~~
~~7 MILES EAST OF GALT DOLLARS~~
7 MILES EAST OF GALT DOLLARS
PORTAGE, IND. Phone 762-7185

\$ 6.12 Richard McDonald

Made in U. S. A.

DICKMAN'S WAYFARER INN
ROLLA, MISSOURI

ROOM	RATE	DATE	AMT. PAID	RECEIVED BY
33	5.00	9-13-67	5.15	Ray

THIS IS YOUR RECEIPT

THANK YOU

Oct 3 1967

Received from Bob Silberglied

~~Surf and 12 U. S. 20 MOTEL
1.00 7 MILES EAST OF GAR~~ Dollars
~~PORTAGE, IND.~~ Phone ~~762-7185~~¹⁹⁶

\$ 6.12

Made in U. S. A.

Richard McDonald

STATE OF NEW YORK - TRAVEL VOUCHER
EDUCATION DEPARTMENT
CORNELL UNIVERSITY—STATE COLLEGES AND EXPERIMENT STATIONS

Voucher No.

State Agency:

Dept./Div. Code

Pay to:

ROBERT ELLIOT SILBERGLIED

Social Security No. [REDACTED]

Payee Name

Transportation Requests Used:
Yes No

Date 19 67	ITEMS OF EXPENDITURE Specify Purpose of Travel	TIME		Transpor-tation Paid	SUBSISTENCE				Miscel-laneous	Sub. Vo. No.	TOTAL
		De-parture	Arrival		Break-fast	Lunch	Dinner	Room or Rm. & Bd.			
9/12	Bring totals from final T E V-3, sheet No. _____							2.00			
9/13	*				1.00	1.75	1.00	5.15			
9/14					1.00	1.00	1.75				
9/15					.75	1.00	2.00				
9/16					1.00	1.00	-				
9/17 - 10/2											
10/3					.50	1.25	2.00				
10/4					.75	1.00	2.25				
10/5					1.00	1.00	2.00				
10/6					.75	1.00	2.50				
		TOTAL									

Travel Order
No. (s) _____

Official Station

Total Amount of this Voucher _____

I, the claimant's superior, certify that this account has been examined and, to the best of my knowledge and belief, the amounts claimed therein were necessary for the performance of the claimant's authorized assignments.

MAJOR			FUNCTION	X	
MINOR	X		OBJECT	X	
DEPT.	X		SUB.		
ACCOUNT			PROJECT		

TRAVEL NOTICE NUMBER _____

Signature of Superior

ENCUMBRANCE LIQUIDATION \$ _____

Title

EXPENDITURE CODES

Appropriation Identification Including Reappropriating	Chapter/Sec./Laws	Fund	Dept.	Div.	Line	Original			Ch.	Obj.	Appropriation Charges
						Chap.	Sec.	Laws			

DUPLICATE

STATE OF NEW YORK - TRAVEL VOUCHER

EDUCATION DEPARTMENT

CORNELL UNIVERSITY—STATE COLLEGES AND EXPERIMENT STATIONS

Voucher No.

State Agency:

Dept./Div. Code

Pay to:

ROBERT ELLIOT SILBERGLIED

Social Security No.

Payee Name

Transportation Requests Used:

Yes No

Date 19 67	ITEMS OF EXPENDITURE Specify Purpose of Travel	TIME		Transpor-tation Paid	SUBSISTENCE				Miscel-laneous	Sub. Vo. No.	TOTAL
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9/13	*				1.00	1.75	1.00	5.15			
9/14					1.00	1.00	1.75				
9/15					.75	1.00	2.00				
9/16					1.00	1.00	-				
9/17 - 10/2											
10/3					.50	1.25	2.00				
10/4					.75	1.00	2.25				
10/5					1.00	1.00	2.00				
10/6					.75	1.00	2.50				
		TOTAL									
Travel Order No.(s) _____	Official Station	Total Amount of this Voucher									

EMPLOYEE COPY

Employee—Retain this copy for your files.

